

PRELIMINARY DATA SUMMARY

October 1986

U.S. Army Engineer Waterways Experiment Station
Coastal Engineering Research Center
Field Research Facility
Duck, North Carolina

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CERC Field Research Facility
Duck, North Carolina

This report provides a summary of basic oceanographic, meteorological and bottom profile data for the month. The data were obtained as part of the Field Research Facility Measurement and Analysis Work Unit at the U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center's Field Research Facility in Duck, North Carolina. The data were collected and the analyses performed by the FRF staff. These summaries are intended to make the data readily available to all FRF users, and comments on their content and usefulness are invited.

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I. INTRODUCTION

The U.S. Army Engineer Waterways Experiment Station, Coastal Engineering Research Center's (CERC) Field Research Facility (FRF) is located on the Outer Banks of North Carolina, near the village of Duck (Fig.1).

The FRF research program provides a means for obtaining high-quality field data, particularly during storms, in support of the U.S. Army Corps of Engineers' coastal engineering research missions. The FRF consists of a 561-m (1,840 ft) long concrete research pier supported on 0.91 m (3 ft) diameter steel piles. The pier deck is 6.1 m (20 ft) wide, 7.74 m (25.4 ft) above mean sea level (MSL), and extends from behind the dunes to approximately the 7.6 m (25 ft) depth contour. In addition, a main building contains offices, an instrument repair shop, and a data acquisition room.

One of the responsibilities of the FRF research program is the collection, analysis and dissemination of data on local oceanographic and meteorological conditions. Bottom profiles along both sides of the pier and periodic bathymetric surveys are also performed.

This summary is intended to provide basic data as soon as possible after they are obtained. Most of the data are daily observations or the results of preliminary data analysis. In many instances, continuous analog records and more extensive analyses will be made available later by the CERC Coastal Engineering Information and Analysis Center (CEIAC).

Table 1 is a list of instruments used, their status during the month, and the data collection status. Figure 2 identifies the location of the instruments. The water depth at the wave gages and current meters vary and may best be determined from the information contained in Figure 8. Other installation information is contained in Table 1. All times unless otherwise specified are referenced to Eastern Standard Time (EST).

Section II presents the meteorological data; Sections III through VI, oceanographic data; Section VII, nearshore profiles and bathymetry; and Section VIII, if included, documents special events that occurred at the FRF during the month.

Questions and/or comments concerning the data may be directed to Mr. Herman C. Miller at (919) 261-3511.

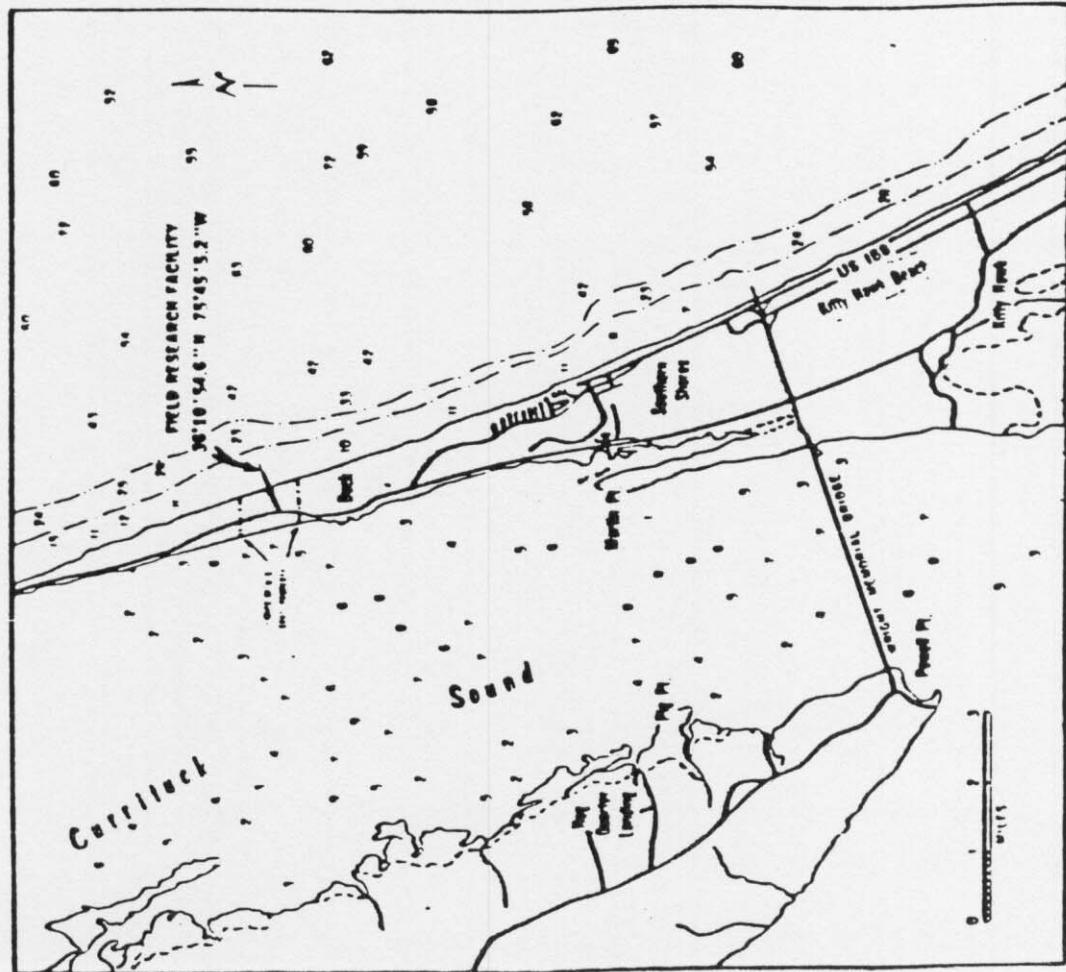
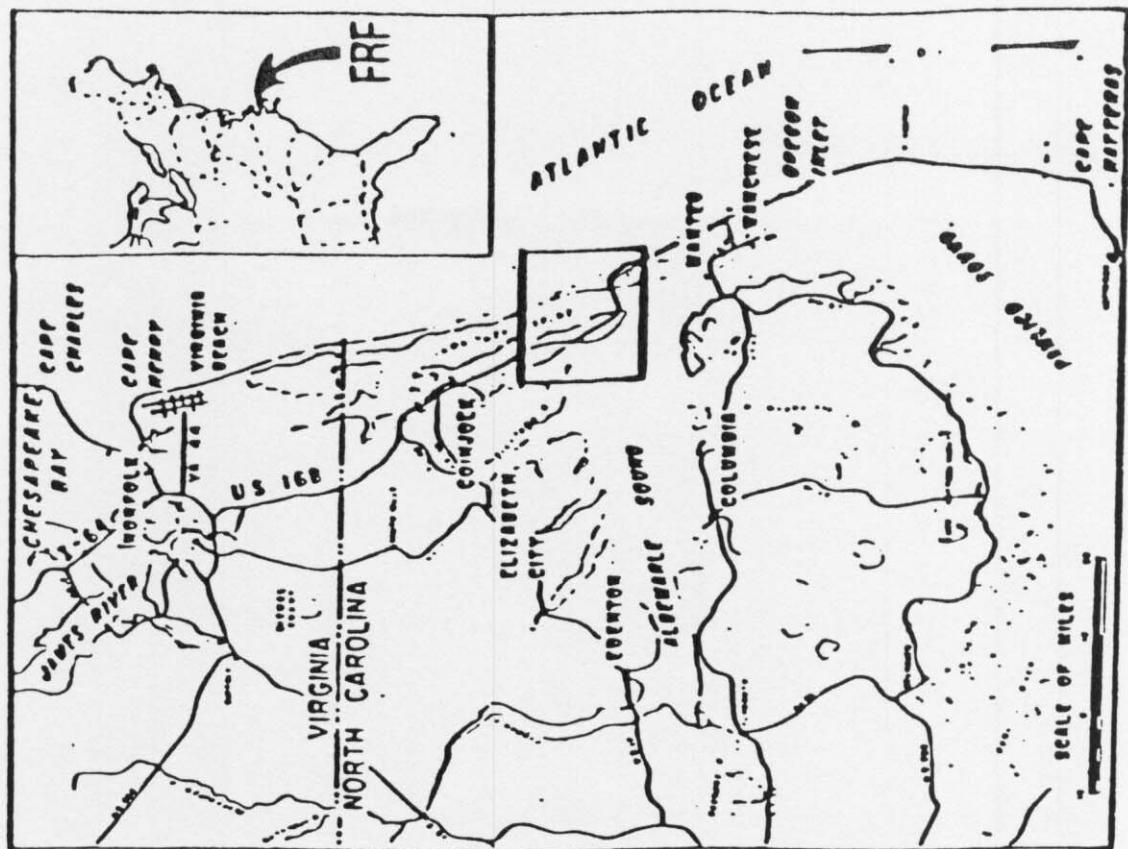
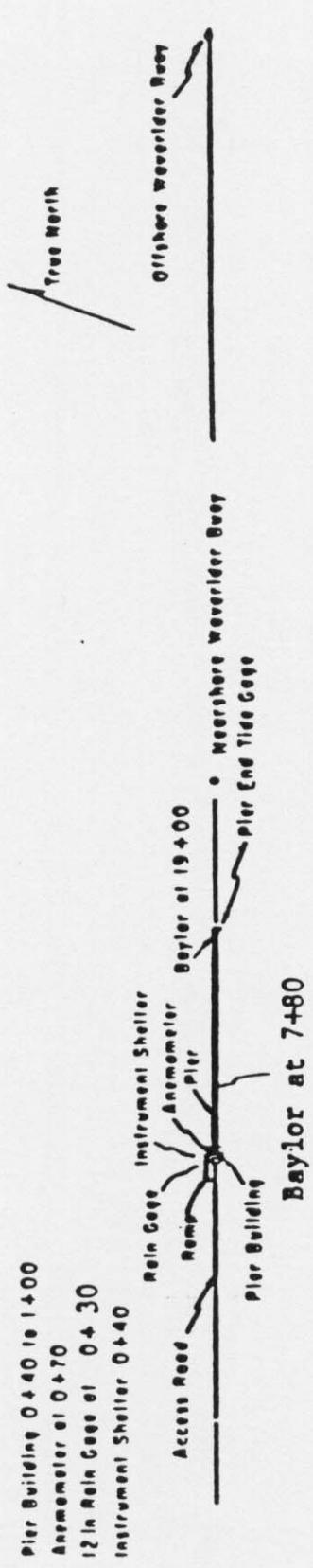


Figure 1. FRF Location Map

TABLE 1
INSTRUMENT STATUS/DATA AVAILABILITY
October 1986

GAGE NUMBER	DESCRIPTION/REMARKS	DEPTH AT SENSOR	DAY OF THE MONTH																		
	Barometric Pressure		Instrument Status																		
		Data Collected	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Analog Record	Instrument Status	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Precipitation		Data Collected	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Analog Record	Instrument Status	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Air Temperature		Data Collected	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Anemometer on Lab Bldg - Elevation 19m (MSL)	Maximum/Minimum	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
		Instrument Status	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
		Data Collected	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
		Analog Record	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
645	Baylor staff located at sta- tion 7480 on FRF pier	See profile data	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
625	Baylor staff located at station 19400 on FRF pier	See profile data	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
640	Waverider buoy located 1.0 km from shore	APPROX. 8.5 m. MSL	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
630	Waverider buoy located 6.0km from shore	APPROX. 18 m. MSL	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
679	Current meter 500H south (0.5km offshore)	APPROX. 6 m MSL	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
865-L170	NOAA primary tide station located at seaward end of FRF pier.	Instrument Status Data Collected	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

Instrument Status: Operational ■ - Daily Observation: YES ■
Data Collected: ALL ■ , SOME ■ , ANALOG RECORD: ALL ■ , PARTIAL ■
Preliminary Analysis: ALL ■ , SOME ■



Current meter 500m south of pier

CURRITUCK SOUND

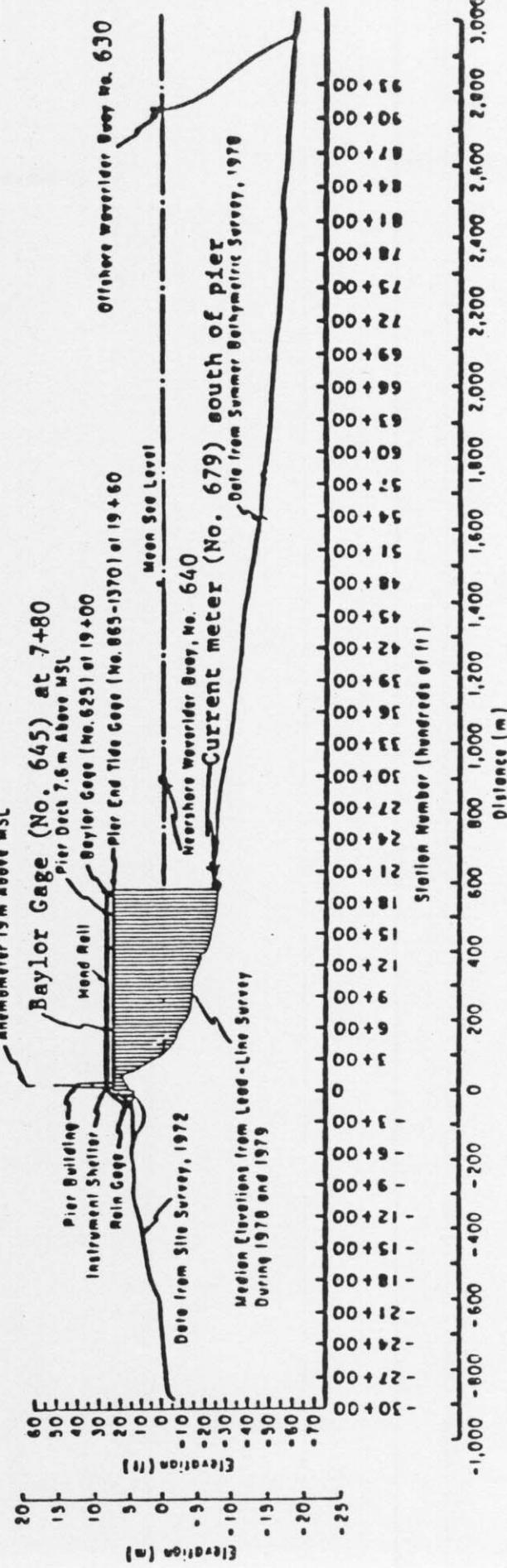


Figure 2. Instrument locations at FRF.

II. METEOROLOGICAL DATA

A variety of instruments have been installed at the FRF (Fig. 2) to monitor the meteorological conditions. The data presented in Table 2 are collected and stored on magnetic tape using a Data General NOVA-4 computer. For each instrument identified in Table 1 as having analog outputs, chart records are obtained, a log is maintained and the records are stored for future reference.

The wind measurements are obtained from a Weather Measure Skyvane located on the FRF laboratory building (Fig. 2), 19.1 m above mean sea level (MSL).

The high and low temperatures are obtained from daily readings of NWS maximum and minimum thermometers and represent the extreme temperature values since the last reading.

The following may be useful for converting the data in Table 2 to other frequently used units of measurement:

1. Millimeters (mm) to inches (in) -
 $mm \times .03937 = in$
2. Millibars (mb) to inches of mercury (in Hg) -
 $mb \times 0.02953 = in Hg$
3. Degrees Celcius (C) to degrees Fahrenheit (F) -
 $(C \times 9/5) + 32 = F$
4. Meters per second (m/s) to knots (kn) -
 $m/s \times 1.943 = kn$

TABLE 2: METEOROLOGICAL DATA

PART 1

OCTOBER 1986

DAY	HOUR	WIND SPEED (M/S)	WIND DIRECTION (DEG TN)	TEMPERATURE (DEG C)	ATM PRESSURE (MB)	PRECIPITATION (MM)
1	100	6	233	24.6	1019.9	0
	700	7	245	24.3	1019.3	0
	1300	6	247	29.9	1017.4	0
	1900	3	241	27.3	1017.0	0
2	100	7	237	25.8	1016.4	0
	700	7	257	25.2	1016.7	0
	1300	3	58	28.5	1016.3	0
	1900	4	123	24.9	1017.2	0
3	100	3	123	23.8	1018.5	0
	700	1	281	23.6	1019.2	0
	1300	5	122	28.3	1018.3	0
	1900	4	187	26.3	1016.6	0
4	100	7	237	26.2	1013.7	0
	700	7	249	25.7	1013.4	0
	1300	9	243	31.0	1011.0	0
	1900	6	236	29.0	1009.2	0
5	100	9	251	26.9	1007.7	0
	700	8	261	26.2	1008.5	0
	1300	6	27	24.9	1009.6	0
	1900	6	90	23.1	1010.4	0
6	100	5	290	22.5	1010.0	0
	700	6	314	19.1	1013.1	0
	1300	12	16	20.1	1015.5	0
	1900	6	350	18.2	1018.2	0
7	100	8	39	18.1	1020.2	0
	700	5	44	17.3	1023.6	0
	1300	5	40	19.0	1024.3	0
	1900	4	105	18.2	1024.3	0
8	100	5	98	19.5	1024.9	0
	700	7	101	21.1	1024.6	0
	1300	6	163	24.6	1023.2	0
	1900	4	200	22.2	1022.6	0
9	100	2	153	20.2	1021.6	0
	700	4	53	21.8	1020.9	0
	1300	2	51	24.0	1018.8	0
	1900	1	104	21.7	1016.5	0
10	100	4	309	20.8	1019.2	0
	700	15	40	19.7	1021.2	0
	1300	14	51	19.4	1021.2	0
	1900	16	52	19.1	1022.9	0
11	100	15	54	18.8	1022.9	0
	700	14	52	18.8	1023.9	11
	1300	14	47	19.7	1023.6	0
	1900	11	45	19.7	1024.6	0
12	100	9	50	19.8	1023.9	0
	700	10	29	19.4	1024.3	0
	1300	6	37	21.0	1023.2	0
	1900	6	40	19.5	1023.9	0
13	100	3	85	19.6	1022.9	0
	700	4	129	20.9	1021.6	0
	1300	5	142	24.1	1018.3	0
	1900	6	96	23.7	1017.2	0
14	100		UPS Failure		1012.4	0
	700				1011.1	0
	1300	9	252	23.4	1010.7	3
	1900	6	230	22.0	1011.7	3
15	100				1013.1	0
	700				1017.5	0
	1300				1017.2	0
	1900		A/D Failure		1017.8	0
16	100				1017.2	0
	700				1016.3	0
	1300	10	6	15.1	1016.8	0
	1900	5	330	13.2	1017.8	0

TABLE 2: METEOROLOGICAL DATA

PART 2

OCTOBER 1986

DAY	HOUR	WIND SPEED (M/S)	WIND DIRECTION (DEG TN)	TEMPERATURE (DEG C)	ATM PRESSURE (MB)	PRECIPITATION (MM)
17	100	9	15	14.6	1017.3	0
	700	8	10	15.1	1018.3	0
	1300	4	7	17.5	1019.5	0
	1900	4	331	14.3	1021.9	0
18	100	5	326	12.3	1023.5	0
	700	6	331	12.3	1025.0	0
	1300	11	1	15.1	1027.3	0
	1900	13	23	14.6	1028.0	0
19	100	12	12	13.9	1028.0	0
	700	12	9	13.6	1028.0	0
	1300	12	5	14.8	1027.3	0
	1900	5	329	11.8	1026.6	0
20	100	5	312	10.1	1025.6	0
	700	6	320	9.8	1025.6	0
	1300	8	20	16.5	1024.6	0
	1900	5	18	15.4	1023.6	0
21	100	4	302	10.4	1023.2	0
	700	4	304	11.3	1023.9	0
	1300	3	41	17.6	1022.6	0
	1900	2	172	12.4	1022.9	0
22	100	4	215	12.9	1022.6	0
	700	2	233	13.6	1023.9	0
	1300				1022.6	0
	1900		Operator Error		1022.5	0
23	100				1023.2	0
	700	5	233	16.7	1024.9	0
	1300	4	233	21.2	1022.6	0
	1900	5	215	19.2	1022.2	0
24	100	4	234	16.0	1022.2	0
	700	3	296	15.1	1021.6	0
	1300	6	22	19.5	1021.6	0
	1900	10	51	17.4	1023.2	0
25	100	10	65	17.1	1023.2	0
	700	8	81	17.5	1023.2	0
	1300	10	63	17.6	1022.2	0
	1900	10	89	18.0	1021.2	0
26	100	7	103	18.4	1018.5	0
	700	5	163	19.0	1017.2	0
	1300	5	184	23.2	1014.8	0
	1900	3	197	20.7	1014.1	0
27	100	4	224	19.9	1012.8	0
	700	3	226	18.9	1013.1	0
	1300	3	250	19.3	1012.8	0
	1900	5	226	17.6	1013.4	0
28	100	5	252	16.1	1014.8	0
	700	6	302	13.4	1019.2	0
	1300	7	17	17.8	1021.6	0
	1900	2	165	14.5	1024.3	0
29	100	2	197	13.4	1025.6	0
	700	3	217	14.0	1026.3	0
	1300	2	137	17.5	1023.6	0
	1900	1	217	14.6	1022.9	0
30	100	3	219	14.9	1021.2	0
	700	4	272	14.6	1021.6	0
	1300	6	16	16.1	1023.2	0
	1900	6	53	15.5	1025.6	0
31	100	10	53	15.1	1029.0	0
	700	12	52	14.1	1032.8	0
	1300	11	42	14.7	1034.5	0
	1900	12	62	15.1	1034.8	0

III. WAVE DATA

Wave data were collected from two Baylor staff gages (CERC gage Nos. 625 and 645) and Waverider buoys (CERC gage Nos. 630 and 640, Table 1 and Figure 2). The data were collected, analyzed, and stored on magnetic tape using a Data General NOVA-4 computer.

The NOVA-4 is programmed to sample the wave gages every 6 hours near 0100, 0700, 1300, and 1900 EST at a sampling rate of four times per second, collecting data in 20- minute records.

Wave height (H_{mo}) is an energy-based statistic equal to four times the standard deviation of the sea surface elevations. The wave period is identified from the computation of a variance (energy) spectrum using a Fast Fourier Transform of 4096 data points (1024 sec). The period (T_p) is that associated with the maximum energy density in the spectrum. When this analysis is complete, the data are written to magnetic tape and entered into the CERC data base.

Table 3 presents the wave heights and periods for each wave record obtained during the month. The monthly means shown in Table 3 are an average of the values computed for all data records collected. The monthly standard deviations are standard deviations from the monthly mean of values for each record.

Figure 3 is a time history of the H_{mo} and T_p values for the Waveriders, 6 km from shore (630) and 1 km from shore (640).

Differences in wave periods between wave gages (Table 4 and Figure 3) may be due to wave breaking or reformation, or the presence of multiple wave trains containing nearly equal energy.

TABLE 3: WAVE DATA

PART 1

OCTOBER 1986

GAGE	DAY	TIME	645		625		640		630	
			Baylor at 7+80 Hmo(m)	T(sec)	Baylor at 19+00 Hmo(m)	T(sec)	Nearsho Wvdr Hmo(m)	T(sec)	Farsho Wvdr Hmo(m)	T(sec)
	1	1	.52	5.99	.58	9.75	.58	12.34	.77	6.87
		7	.40	6.87	.51	12.34	.53	8.83	.64	5.99
		13	.31	8.06	.40	8.83	.47	8.83	.53	8.83
		19	.33	12.34	.38	10.89	.41	12.34	.44	14.22
2	1		.31	8.83	.34	9.75	.33	12.34	.49	8.83
		7	.27	8.83	.31	8.83	.32	9.75	.43	9.75
		13	.23	8.83	.30	8.83	.34	9.75	.40	8.83
		19	.29	8.83	.34	9.75	.32	8.83	.42	9.75
3	1		.20	8.83	.27	9.75	.29	8.83	.37	9.75
		7	.24	9.75	.30	12.34	.31	9.75	.38	8.83
		13	.29	8.83	.32	8.06	.30	12.34	.35	8.83
		19	.29	9.75	.35	12.34	.35	9.75	.37	9.75
4	1		.30	4.76	.30	12.34	.30	12.34	.43	8.83
		7	.24	8.83	.26	8.83	.30	12.34	.40	12.34
		13	.20	9.75	.23	12.34	.24	12.34	*	
		19	.19	12.34	.23	12.34	.25	10.89	.29	8.83
5	1		.22	14.22	.20	8.83	.22	9.75	*	
		7	.21	6.74	.22	8.83	.26	9.84	.37	8.53
		13	.32	2.00	.32	12.80	.36	12.80	.41	2.37
		19	.46	3.89	.58	4.00	.48	4.57	.55	5.56
6	1		.38	5.33	.45	4.27	.48	4.57	.55	5.5
		7	.55	4.41	.67	3.88	.76	3.66	1.10	5.12
		13	1.13	5.24	1.33	5.24	1.36	5.39	1.66	6.10
		19	.79	5.39	.93	5.39	.93	4.96	1.20	5.72
7	1		.89	5.39	.98	5.72	1.01	4.59	1.23	5.55
		7	.72	5.39	.86	7.29	.89	7.59	1.13	7.01
		13	.58	5.72	.66	7.01	.70	7.01	.86	5.90
		19	.52	6.10	.72	7.29	.76	7.01	.97	7.29
8	1		.43	6.10	.64	6.52	.64	6.52	.74	5.72
		7	.61	4.18	.83	3.61	.88	4.18	.92	6.30
		13	.53	4.48	.69	4.48	.75	4.83	.75	4.96
		19		*		*	.61	4.48	.82	5.39
9	1		*		.73	6.40	.90	6.30	.91	6.10
		7			.67	6.30	.77	6.52	1.08	6.30
		13	.73	6.30			.70	7.01	.92	6.30
		19	.55	6.10	.56	6.30	.61	6.30	.76	6.30
10	1		.41	6.10	.45	5.90	.48	5.90	.63	6.10
		7	1.40	5.39	1.41	5.55	1.63	5.39	1.89	5.24
		13	1.89	7.59	2.32	6.30	2.36	7.59	2.64	7.01
		19	1.46	8.64	2.86	7.29	2.95	7.29	2.94	7.01
11	1		1.65	9.53	2.59	8.26	3.05	7.91	3.21	7.91
		7	1.37	8.26	1.72	10.04	3.07	9.06	3.46	8.64
		13	1.69	10.61	2.07	10.61	2.98	9.14	2.90	7.59
		19	1.76	10.61	2.40	9.06	2.57	10.04	2.57	10.04
12	1		1.90	13.74	*		2.46	10.61	2.37	13.74
		7	1.65	10.66	2.11	11.14	2.12	10.66	2.12	9.84
		13	1.79	11.98	2.20	11.98	2.15	11.98	2.24	10.61
		19	1.49	11.98	1.75	10.61	1.78	10.61	1.68	11.98
13	1		1.20	11.98	1.83	11.98	1.93	11.98	1.60	11.9
		7	1.01	11.98	1.55	11.98	1.59	11.25	1.49	11.25
		13	.82	10.61	1.34	11.25	1.31	11.25	1.40	11.98
		19	.71	9.48	1.22	9.84	1.19	11.64	1.33	10.66
14	1		*		*		*		*	
		7	.63	9.14	.89	9.48	.95	9.48	1.11	8.83
		13	.55	9.48	.89	9.53	.93	9.48	1.17	9.48
		19	.37	10.04	.69	10.04	.73	10.61	.85	9.53
15	1		*		*		*		*	
		7			*		*		*	
		13	.83	5.82	1.22	6.09	1.20	6.40	1.30	6.74
		19	.71	4.66	.95	6.09	.94	6.09	1.00	6.09
16	1		.78	4.27	1.05	4.66	1.07	4.27	1.11	4.66
		7	.88	4.66	1.11	4.57	1.09	4.49	1.23	4.66
		13	1.09	5.33	1.39	5.12	1.44	5.33	1.60	5.22
		19	.64	4.83	1.07	5.72	1.04	4.71	1.12	5.24

*=Electronic Problems

TABLE 3: WAVE DATA

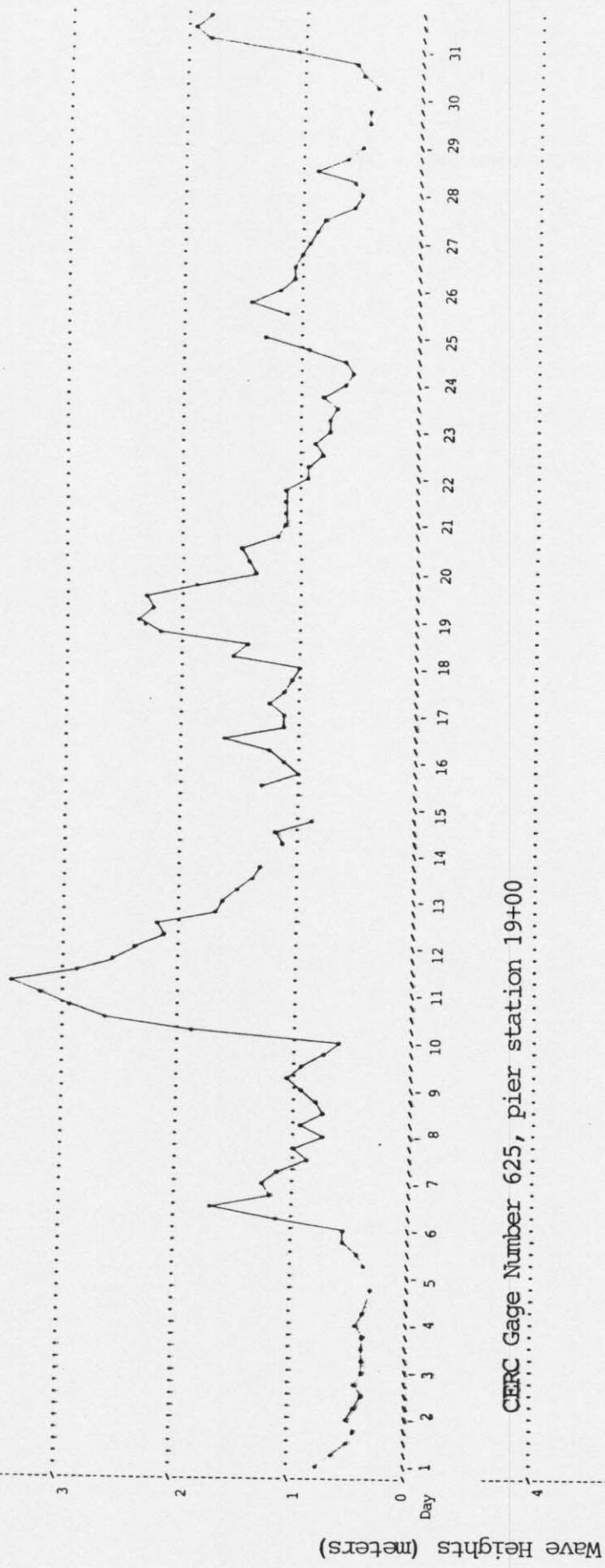
PART 2

OCTOBER 1986

GAGE		645		625		640		630	
DAY	TIME	Baylor at 7+80 Hmo(m)	T(sec)	Baylor at 19+00 Hmo(m)	T(sec)	Nearshtr Wvrdr Hmo(m)	T(sec)	Farshtr Wvrdr Hmo(m)	T(sec)
17	1	.68	4.38	1.06	4.48	1.04	5.24	1.12	4.71
	7	.74	4.48	1.08	4.96	1.05	4.48	1.22	5.09
13		.54	3.61	.95	6.10	.98	5.55	1.10	5.24
19		.50	8.64	.95	8.64	.98	8.64	1.05	8.26
18	1	.50	2.98	1.03	9.53	1.04	9.06	1.01	7.59
	7	.79	4.59	1.27	9.53	1.26	4.83	1.54	5.09
13		.89	5.24	1.34	9.53	1.28	9.53	1.45	5.09
19		1.43	5.90	2.05	6.10	2.05	6.30	2.21	6.76
19	1	1.14	6.52	1.98	9.06	2.00	7.91	2.34	8.26
	7	1.43	10.61	2.05	9.53	2.05	10.61	2.28	6.10
13		1.22	10.61	2.15	11.98	2.21	11.98	2.31	10.61
19		1.14	10.04	1.89	11.25	1.82	11.25	1.87	5.90
20	1	.75	11.25	1.33	11.25	1.36	11.25	1.39	9.06
	7	.82	10.61	1.46	10.61	1.40	10.61	1.41	9.53
13		.82	4.18	1.33	10.04	1.29	10.04	1.49	10.61
19		.72	11.98	1.23	10.04	1.21	10.61	1.21	5.72
21	1	.60	11.25	1.08	10.61	1.11	11.25	1.10	11.25
	7	.63	10.04	1.04	10.04	1.02	9.54	1.11	8.64
13		.59	11.98	1.00	10.61	1.00	11.25	1.09	11.25
19		.59	11.25	1.01	11.98	.98	11.25	1.10	11.25
22	1	.47	11.25	.89	11.25	.89	10.61	.93	11.25
	7	.49	11.98	.90	11.98	.86	10.04	.91	11.98
13		.48	11.64	.82	11.14	.83	11.64	.81	10.24
19		.40	11.64	.83	11.14	.87	10.66	.86	10.66
23	1	.48	11.14	.81	11.14	.73	10.66	.73	10.66
	7	.41	11.64	.79	10.66	.79	10.66	.76	11.13
13		.42	11.98	.74	11.98	.71	11.98	.68	10.61
19		.32	11.64	.65	11.13	.72	10.24	.80	9.84
24	1	.28	12.80	.54	10.04	.52	9.53	.57	10.04
	7	.21	12.80	.55	10.61	.53	11.98	.62	10.66
13		.49	3.01	.69	10.66	.69	11.14		
19		.74	4.09	.95	10.61	.92	4.28	.93	10.04
25	1	.91	5.24	1.21	5.39	1.21	5.39	1.31	5.72
	7	*	*	*	*	*	*	*	*
13		.91	5.39	1.14	5.72	1.14	5.72	1.15	5.55
19		.79	3.84	1.28	5.09	1.27	5.24	1.44	4.96
26	1	.72	6.52	1.13	5.09	1.11	5.90	1.21	5.24
	7	.48	6.52	.98	5.72	.91	5.09	1.07	5.55
13		.54	5.90	.88	6.30	.86	6.30	1.08	5.90
19		.33	6.76	.75	6.30	.74	7.59	1.00	5.90
27	1	.48	7.01	.75	6.76	.78	6.52	.94	6.52
	7	.30	7.01	.66	7.59	.65	6.52	.89	7.29
13		.39	7.59	.59	7.91	.62	7.91	.84	8.26
19		.19	7.59	.44	7.01	.42	7.91	.54	7.29
28	1	.21	7.59	.38	9.06	.36	7.29	.49	7.01
	7	.35	2.98	.42	9.06	.40	7.59	.54	9.06
13		.73	4.09	.77	4.38	.73	4.00	.90	4.18
19		.44	4.38	.52	4.71	.50	4.83	.47	4.28
29	1			.38	7.91			.48	6.30
	7	*	*	*	*	*	*	*	*
13		*		.39	6.76			.45	6.52
19		*		*				.42	6.30
30	1							.39	7.29
	7							.47	6.87
13									
19		.46	3.05	.54	3.38	.53	3.26	.58	3.64
31	1	.80	4.32	1.05	4.53	1.01	4.13	1.08	4.53
	7	1.36	5.99	1.63	6.40	1.77	5.99	1.79	5.63
13		*		1.79	6.87	1.90	6.87	1.91	6.40
19		1.31	5.31	1.62	6.40	1.62	6.87	1.84	6.40
MEAN		.70	7.79	.98	8.40	1.04	8.29	1.13	7.77
STD		.43	3.02	.58	2.60	.66	2.70	.66	2.43

*=Electronic Problems

CERC Gage Number 630, Waverider 6 km from shore



CERC Gage Number 625, pier station 19+00

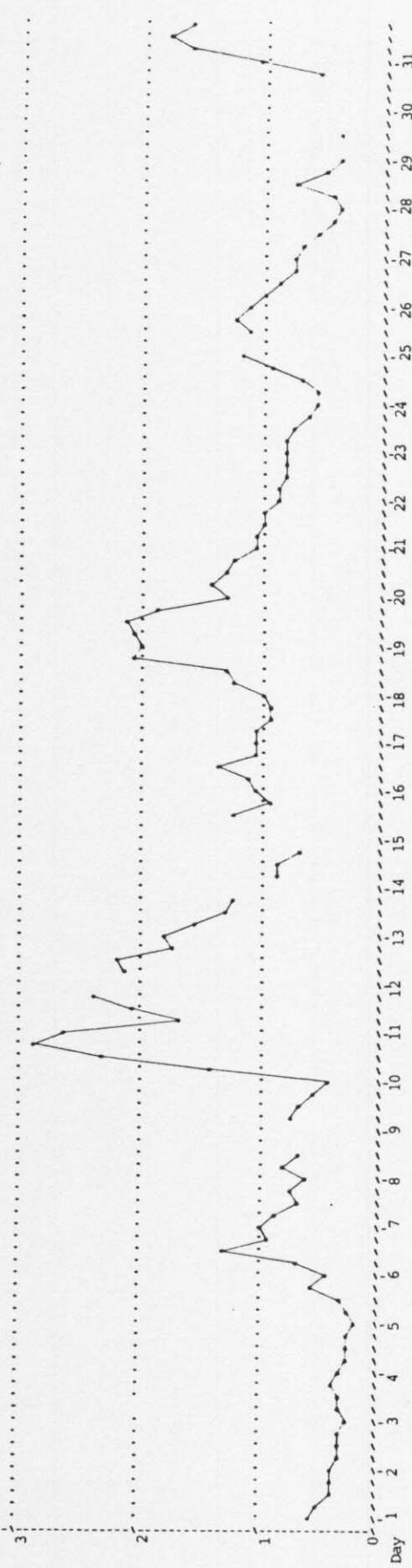
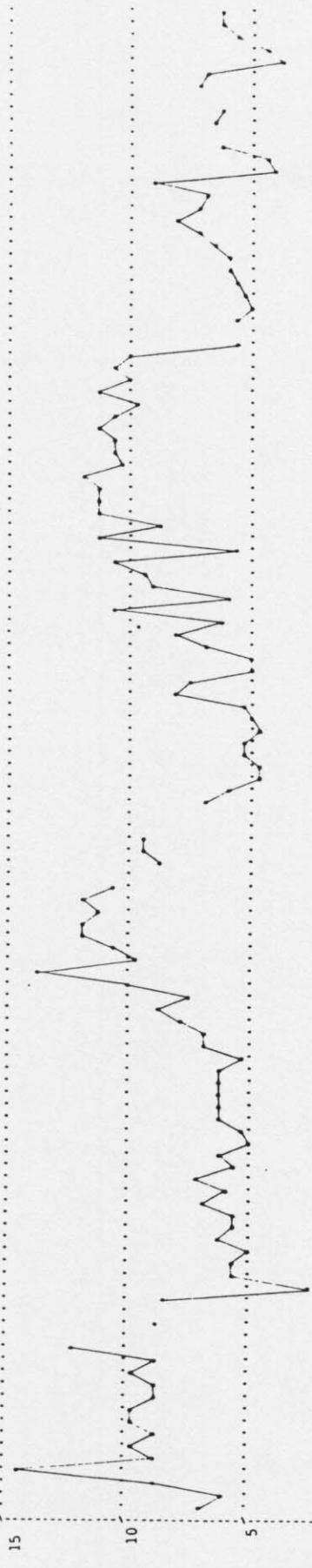


FIGURE 3. Time History of Wave Heights and Periods - October 1986 Part I: Heights

CERC Gage Number 630, Waverider 6 km from shore

20



CERC Gage Number 625, pier station 19+00

13



FIGURE 3. Time History of Wave Heights and Periods - October 1986

Part II: Periods

IV. CURRENT DATA

Current data (Table 4) are collected from a Marsh-McBirney electromagnetic biaxial current meter (Table 1 and Figure 2) and by visually observing the movement of dye on the water surface in the surf and at the seaward end of the pier, as well as 500 m updrift of the pier 12 m offshore.

Since the shoreline orientation is approximately N20W, alongshore currents flow either toward 340 (i.e. northward) or toward 160 (i.e. southward). Similarly, cross-shore currents are either onshore (westward) or offshore (eastward).

All current speeds are given in centimeters per second.

TABLE 4: CURRENT DATA
(SPEEDS IN CM/SEC)
October 1986

DAY:	TIME	SPEED DIR	PIER MEASUREMENTS			BEACH MEASUREMENTS (500' UPWIND)			CURRENT METER AT SOUTH TIPPO
			DYE AT 19+00 (579m) (SURFACE)	DYE AT MID SURF ZONE (SURFACE) DIST. FROM	12M OFFSHORE (SURFACE)	(DEPTH -4.8m MSL) 1.1.0674			
1	0100-Alongshore								2 ON
	Cross-shore								8 326
	Resultant								
1	0700-Alongshore	12 N			68 N		14 N		5 N
	Cross-shore	16 Off		128 0 0					5 Off
	Resultant	20 34			68 340				5 316
1	1300-Alongshore								8 N
	Cross-shore								2 ON
	Resultant								8 329
1	1900-Alongshore								5 N
	Cross-shore								1 Off
	Resultant								9 39
-2	0100-Alongshore								4 N
	Cross-shore								1 ON
	Resultant								4 326
2	0700-Alongshore	5 S			0 0		8 N		0
	Cross-shore	9 Off		140 15 Off					0 0
	Resultant	10 100			15 94				
2	1300-Alongshore								2 S
	Cross-shore								5 Off
	Resultant								6 81
2	1900-Alongshore								1 S
	Cross-shore								1 Off
	Resultant								1 118
-3	0100-Alongshore								4 S
	Cross-shore								1 Off
	Resultant								4 139
3	0700-Alongshore	7 S			30 N				6 S
	Cross-shore	2 On		128 3 Off					2 Off
	Resultant	7 174			31 346				7 144
3	1300-Alongshore								11 S
	Cross-shore								12 Off
	Resultant								17 111
3	1900-Alongshore								4 S
	Cross-shore								0
	Resultant								5 160
-4	0100-Alongshore								1 N
	Cross-shore								1 ON
	Resultant								2 300
4	0700-Alongshore	0 0							4 N
	Cross-shore	16 S		128 15 S					1 ON
	Resultant	16 97			16 46				4 323
4	1300-Alongshore								0
	Cross-shore								1 ON
	Resultant								1 250
4	1900-Alongshore								3 N
	Cross-shore								4 Off
	Resultant								9 48
-5	0100-Alongshore								1 N
	Cross-shore								0
	Resultant								1 340
5	0700-Alongshore	11 S			8 S		11 S		3 N
	Cross-shore	12 Off		128 6 Off					0
	Resultant	16 112			10 123				3 340
5	1300-Alongshore								14 S
	Cross-shore								5 Off
	Resultant								12 122
5	1900-Alongshore								10 N
	Cross-shore								0
	Resultant								12 17
-6	0100-Alongshore								2 S
	Cross-shore								1 Off
	Resultant								3 115
6	0700-Alongshore	36 S			122 S		57 S		12 S
	Cross-shore	0 0		115 0 0					4 Off
	Resultant	36 160			122 160				13 142
6	1300-Alongshore								26 S
	Cross-shore								27 Off
	Resultant								16 145
6	1900-Alongshore								16 S
	Cross-shore								4 Off
	Resultant								16 146

KEY = ALL SPEEDS IN CM/SEC
N = NORTHWARD, SHORE PARALLEL
S = SOUTHWARD, SHORE PARALLEL
ON=ONSHORE
OF=OFFSHORE

DAY:	TIME	FICK MEASUREMENTS			BEACH MEASUREMENTS (500' UPDRIFT)			CURRENT METER AT SOUTH TRIFID
		DYE AT 19+00 (579m) (SURFACE)	DYE AT MID-SURF ZONE (SURFACE) DIST. FROM	DYE 12M OFFSHORE (SURFACE)	DEPTH -4.8m MSL 1.1.679			
7	0100-Alongshore							21
	Cross-shore							6
	Resultant							22
7	0700-Alongshore	16 S		68 S		60 S		12
	Cross-shore	9 On		44 On				5 Off
	Resultant	18 189		81 193				13 132
7	1300-Alongshore							18
	Cross-shore							8 Off
	Resultant							20
7	1900-Alongshore							11
	Cross-shore							7 Off
	Resultant							13 128
8	0100-Alongshore							11
	Cross-shore							6 Off
	Resultant							13 131
8	0700-Alongshore	6 N		44 N		10 N		3 N
	Cross-shore	11 On		17 On				5 Off
	Resultant	13 279		47 318				6 39
8	1300-Alongshore							1
	Cross-shore							7 Off
	Resultant							7 78
8	1900-Alongshore							2 N
	Cross-shore							0
	Resultant							2 340
9	0100-Alongshore							0
	Cross-shore							2 Off
	Resultant							3 70
9	0700-Alongshore	23 N		87 N		50 N		7 N
	Cross-shore	4 Off		44 On				11 Off
	Resultant	24 349		97 313				13 38
9	1300-Alongshore							4 N
	Cross-shore							6 Off
	Resultant							7 36
9	1900-Alongshore							1 N
	Cross-shore							6 Off
	Resultant							6 61
10	0100-Alongshore							3
	Cross-shore							4 Off
	Resultant							5 107
10	0700-Alongshore	44 S		122 S		81 S		35 S
	Cross-shore	17 On		176 0 0				7 Off
	Resultant	47 182		122 160				36 149
10	1300-Alongshore							44 S
	Cross-shore							11 Off
	Resultant							45 146
10	1900-Alongshore							57 S
	Cross-shore							12 Off
	Resultant							58 148
11	0100-Alongshore							48 S
	Cross-shore							13 Off
	Resultant							50 145
11	0700-Alongshore	34 S		68 S		18 S		41 S
	Cross-shore	14 Off		345 10 Off				17 Off
	Resultant	36 138		68 151				44 132
11	1300-Alongshore							36 S
	Cross-shore							11 Off
	Resultant							38 143
11	1900-Alongshore							31 S
	Cross-shore							12 Off
	Resultant							34 132
12	0100-Alongshore							24 S
	Cross-shore							12 Off
	Resultant							27 132
12	0700-Alongshore	51 S		23 N		14 N		27 S
	Cross-shore	10 On		188 12 Off				9 Off
	Resultant	52 171		26 7				28 142
12	1300-Alongshore							19 S
	Cross-shore							11 Off
	Resultant							22 130
12	1900-Alongshore							25 S
	Cross-shore							11 Off
	Resultant							28 134

KEY = ALL SPEEDS IN FM SEC
 N = NORTHWARD, SHORE PARALLEL
 S = SOUTHWARD, SHORE PARALLEL
 ON=ONSHORE
 OF=OFFSHORE

DAY	TIME	FIRE MEASUREMENTS			BEACH MEASUREMENTS		
		DYE AT 19+00 (579m) (SURFACE)	DYE AT MID-SURF ZONE (SURFACE)	DIST. FROM BASELINE(M)	DYE AT SOUTH TRIFC (DEPTH -4.8m MSL) (SURFACE)	LOCATION	SPEED (CM/SEC)
13	0100-Alongshore						
	Cross-shore						
	Resultant						
13	0700-Alongshore	22 N		68 N		23 N	
	Cross-shore	0 0		10 Off		0	
	Resultant	22 340		68 349		0	340
13	1300-Alongshore						
	Cross-shore						
	Resultant						
13	1900-Alongshore						
	Cross-shore						
	Resultant						
14	0100-Alongshore						
	Cross-shore						
	Resultant						
14	0700-Alongshore	23 N		102 N		91 N	
	Cross-shore	11 Off		0 0		0	N ON
	Resultant	25 2		102 340		11	330
14	1300-Alongshore						
	Cross-shore						
	Resultant						
14	1900-Alongshore						
	Cross-shore						
	Resultant						
15	0100-Alongshore						
	Cross-shore						
	Resultant						
15	0700-Alongshore	51 S		122 S		114 S	
	Cross-shore	0 0		0 0		0	
	Resultant	51 160		122 160		12	345
15	1300-Alongshore						
	Cross-shore						
	Resultant						
15	1900-Alongshore						
	Cross-shore						
	Resultant						
16	0100-Alongshore						
	Cross-shore						
	Resultant						
16	0700-Alongshore	41 S		76 S		53 S	
	Cross-shore	12 On		23 On		0	
	Resultant	42 177		80 177		25	5
16	1300-Alongshore						
	Cross-shore						
	Resultant						
16	1900-Alongshore						
	Cross-shore						
	Resultant						
17	0100-Alongshore						
	Cross-shore						
	Resultant						
17	0700-Alongshore	47 S		55 S		56 S	
	Cross-shore	9 On		0 0		0	
	Resultant	48 171		55 160		24	5
17	1300-Alongshore						
	Cross-shore						
	Resultant						
17	1900-Alongshore						
	Cross-shore						
	Resultant						
18	0100-Alongshore						
	Cross-shore						
	Resultant						
18	0700-Alongshore	61 S		87 S		44 S	
	Cross-shore	6 On		0 0		0	
	Resultant	61 166		87 160		26	5
18	1300-Alongshore						
	Cross-shore						
	Resultant						
18	1900-Alongshore						
	Cross-shore						
	Resultant						

KEY = ALL SPEEDS IN CM/SEC
 N =NORTHWARD, SHORE PARALLEL
 S =SOUTHWARD, SHORE PARALLEL
 ON=ONSHORE
 OF=OFFSHORE

DAY	TIME	PIER MEASUREMENTS			BEACH MEASUREMENTS (500 FT INFRONT)			CURRENT METER AT SOUTH TRIPOLI
		DYE AT 1900 (579m) (SURFACE)	DYE AT MID-SURF ZONE (SURFACE) DIST. FROM BASELINE(M)	DYE 12M OFFSHORE (SURFACE)	LOCATION	SPEED DIR	SPEED DIR	
19	0100-Alongshore							39
	Cross-shore							8 OF
	Resultant							40 148
19	0700-Alongshore	68 S						
	Cross-shore	20 On		188 122 S		49 S	37 S	
	Resultant	71 177		91 On	North	9	9 OF	
19	1300-Alongshore			152 197			38 146	
	Cross-shore						43 S	
	Resultant						9 OF	
19	1900-Alongshore						44 148	
	Cross-shore						23 S	
	Resultant						6 OF	
20	0100-Alongshore						24 145	
	Cross-shore						20 S	
	Resultant						4 OF	
20	0700-Alongshore	32 S					20 149	
	Cross-shore	6 Off		44 152		23 S	7 S	
	Resultant	33 149		20 Off	North	4	4 OF	
20	1300-Alongshore			48 136			8 130	
	Cross-shore						24 S	
	Resultant						7 OF	
20	1900-Alongshore						25 144	
	Cross-shore						21 S	
	Resultant						7 OF	
21	0100-Alongshore						22 142	
	Cross-shore						14 S	
	Resultant						6 OF	
21	0700-Alongshore	12 S					15 132	
	Cross-shore	3 Off		41 140		4 S	2 S	
	Resultant	12 146		0 0	South	0	0	
21	1300-Alongshore			41 340			2 160	
	Cross-shore						8 S	
	Resultant						10 OF	
21	1900-Alongshore						13 109	
	Cross-shore						11 S	
	Resultant						1 OF	
22	0100-Alongshore						12 136	
	Cross-shore						10 S	
	Resultant						5 OF	
22	0700-Alongshore	20 N					11 133	
	Cross-shore	4 Off		28 140		0 0	8 N	
	Resultant	20 351		8 Off	South	0	3 ON	
22	1300-Alongshore			29 357			9 319	
	Cross-shore							
	Resultant							
22	1900-Alongshore							
	Cross-shore							
	Resultant							
23	0100-Alongshore							
	Cross-shore							
	Resultant							
23	0700-Alongshore	21 S						
	Cross-shore	16 Off		44 144		48 N	14 N	
	Resultant	26 123		9 Off	South	1	0 O	
23	1300-Alongshore			44 351			14 344	
	Cross-shore						10 N	
	Resultant						2 O	
23	1900-Alongshore						10 351	
	Cross-shore						11 N	
	Resultant						6 O	
24	0100-Alongshore						13 9	
	Cross-shore						4 N	
	Resultant						3 OF	
24	0700-Alongshore	7 N					5 12	
	Cross-shore	4 Off		76 152		10 S	7 N	
	Resultant	8 7		152 Off	South	2	0 O	
24	1300-Alongshore			170 43			7 356	
	Cross-shore						3 S	
	Resultant						10 OF	
24	1900-Alongshore						10 87	
	Cross-shore						7 S	
	Resultant						6 OF	
							9 119	

KEY = ALL SPEEDS IN CM/SEC
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 S =SOUTHWARD, SHORE PARALLEL
 ON=ON SHORE
 OF=OFFSHORE

DAY	TIME	SPEED (M/S)	DYES MEASUREMENTS			BEACH MEASUREMENTS (500' UPWASH)			CURRENT METER AT SOUTH TRIFID
			DYE AT 1940G (579m) (SURFACE)	DYE AT MID-SURF ZONE (SURFACE) DIST. FROM 12M OFFSHORE (SURFACE)	DYE 12M OFFSHORE (DEPTH -4.8m MSL)	1.0.0675			
25	0100-Alongshore								
	Cross-shore								
	Resultant								
25	0700-Alongshore	0 0		55 S			23 N		
	Cross-shore	10 On		152 0 0			North		
	Resultant	10 205		55 160					
25	1300-Alongshore								
	Cross-shore								
	Resultant								
25	1900-Alongshore								
	Cross-shore								
	Resultant								
26	0100-Alongshore								
	Cross-shore								
	Resultant								
26	0700-Alongshore	34 N		87 N			82 N		
	Cross-shore	0 0		152 0 0			South		
	Resultant	34 340		87 340					
26	1300-Alongshore								
	Cross-shore								
	Resultant								
26	1900-Alongshore								
	Cross-shore								
	Resultant								
27	0100-Alongshore								
	Cross-shore								
	Resultant								
27	0700-Alongshore	20 N		51 N			11 N		
	Cross-shore	9 Off		152 0 0			South		
	Resultant	21 2		51 340					
27	1300-Alongshore								
	Cross-shore								
	Resultant								
27	1900-Alongshore								
	Cross-shore								
	Resultant								
28	0100-Alongshore								
	Cross-shore								
	Resultant								
28	0700-Alongshore	27 S		18 S			20 N		
	Cross-shore	8 Off		152 9 Off			North		
	Resultant	28 143		20 133					
28	1300-Alongshore								
	Cross-shore								
	Resultant								
28	1900-Alongshore								
	Cross-shore								
	Resultant								
29	0100-Alongshore								
	Cross-shore								
	Resultant								
29	0700-Alongshore	0 0		16 N			3 S		
	Cross-shore	5 Off		140 16 Off			South		
	Resultant	5 115		23 25					
29	1300-Alongshore								
	Cross-shore								
	Resultant								
29	1900-Alongshore								
	Cross-shore								
	Resultant								
30	0100-Alongshore								
	Cross-shore								
	Resultant								
30	0700-Alongshore	8 S		11 N			10 N		
	Cross-shore	9 Off		140 8 Off			North		
	Resultant	12 111		14 11					
30	1300-Alongshore								
	Cross-shore								
	Resultant								
30	1900-Alongshore								
	Cross-shore								
	Resultant								
31	0100-Alongshore								
	Cross-shore								
	Resultant								
31	0700-Alongshore	32 S		87 S			No obs.		
	Cross-shore	5 On		152 26 On			North		
	Resultant	32 169		91 177					
31	1300-Alongshore								
	Cross-shore								
	Resultant								
31	1900-Alongshore								
	Cross-shore								
	Resultant								

KEY = ALL SPEEDS IN CM/SEC
 N = NORTHWARD, SHORE PARALLEL
 S = SOUTHWARD, SHORE PARALLEL
 ON=ONE HOUR
 OF=OFFSHORE

V. SUPPLEMENTAL OBSERVATIONS

Visual wave direction measurements (Table 5) taken at the seaward end of the pier are made of both the primary wave train (i.e. that having the larger wave heights) and the secondary wave train (which must be clearly distinguishable as a wave train separate from the primary waves) but not surface chop or capillary waves. The direction of the primary wave train just north of the seaward end of the pier is also determined using a Raytheon Marine Pathfinder radar and measuring alignment of the wave crests. The pier axis (considered perpendicular to the beach at the FRF) is orientated 70 east of true north; consequently, wave angles greater than 70 imply the waves were coming from the south side of the pier.

The width of the surf zone (seawardmost breaker position to shoreline) is determined from the pier deck.

Measurements of surface water temperature, density, and visibility are made daily at the seaward end of the FRF pier. A jar along with a thermometer is lowered about .3 m (1 ft) into the water and allowed to remain for at least one minute. The jar is removed, the temperature read and a hydrometer is used to determine the density. A secci disc is used to determine the surface visibility.

TABLE 5
SUPPLEMENTAL OBSERVATIONS

OCT 1986

WAVE APPROACH ANGLE:						WATER CHARACTERISTICS			
		AT PIER END	RADAR WAVE:			AT PIER END	DENSITY:SECCI		
DAY	TIME	Primary:Secondary	deg from True N	ANGLE deg	WIDTH OF SURF ZONE(m)	TEMP(C)	(g/cc)	VIS(m)	
1	700	120			43	22.0	1.0224	1.2	
2	800	100			24	21.5	1.0226	1.5	
3	845	none visible			20	23.2	1.0220	1.8	
4	835	none visible			6	21.3	1.0222	2.7	
5	730	none visible			6	21.0	1.0230	4.3	
6	805	15			23	20.9	1.0229	2.4	
7	610	20			61	20.6	1.0230	0.9	
8	700	90		inoperative	76	21.4	1.0233	1.8	
9	635	95		inoperative	64	21.7	1.0220	7.0	
10	656	45		50	171	21.8	1.0222	0.9	
11	740	60		inoperative	498	20.1	1.0213	0.0	
12	841	90	75	inoperative	317	20.2	1.0204	0.6	
13	703	90	80	inoperative	223	20.5	1.0204	0.3	
14	650	90	75	inoperative	91	21.0	1.0220	0.3	
15	637	30	40	inoperative	119	20.5	1.0225	0.3	
16	622	50		inoperative	104	19.2	1.0227	0.6	
17	615	20		inoperative	79	18.1	1.0222	0.6	
18	905	40	65	65	82	17.8	1.0212	0.6	
19	845	60	30	inoperative	250	16.8	1.0212	0.6	
20	720	40	70	inoperative	107	17.3	1.0220	0.3	
21	637	80	55	inoperative	99	17.0	1.0218	0.3	
22	633	80		30	81	17.3	1.0224	0.6	
23	840	105			72	18.2	1.0228	0.9	
24	730	90			61	18.0	1.0232	0.9	
25	805	45	50	60	177	18.2	1.0230	0.6	
26	906	90	80		88	18.2	1.0230	0.6	
27	740	100		90	79	18.3	1.0230	0.9	
28	731	80		80	69	18.0	1.0232	0.6	
29	709	90			41	17.8	1.0230	2.4	
30	712	100			43	17.6	1.0227	1.2	
31	800	50			291	17.3	1.0227	0.6	

VI. WATER LEVELS

The National Ocean Services (NOS) has established a primary tide station (No. 865- 1370) at the seaward end of the FRF pier. A Leupold-Stevens digital recording float-type tide gage is used to collect data every 6 minutes throughout the month.

Figure 4 shows the variation in mean water levels computed over a tidal cycle period (12.42 hours), and contains a list of selected mean and extreme values. This presentation is useful in identifying effects on both meteorological and astronomical forces on the open coast water levels.

Table 6 contains the time of the center of each sampling interval and the range, high, low, and mean water levels during each tidal cycle.

FRF TIDE HEIGHTS
OCT 1986

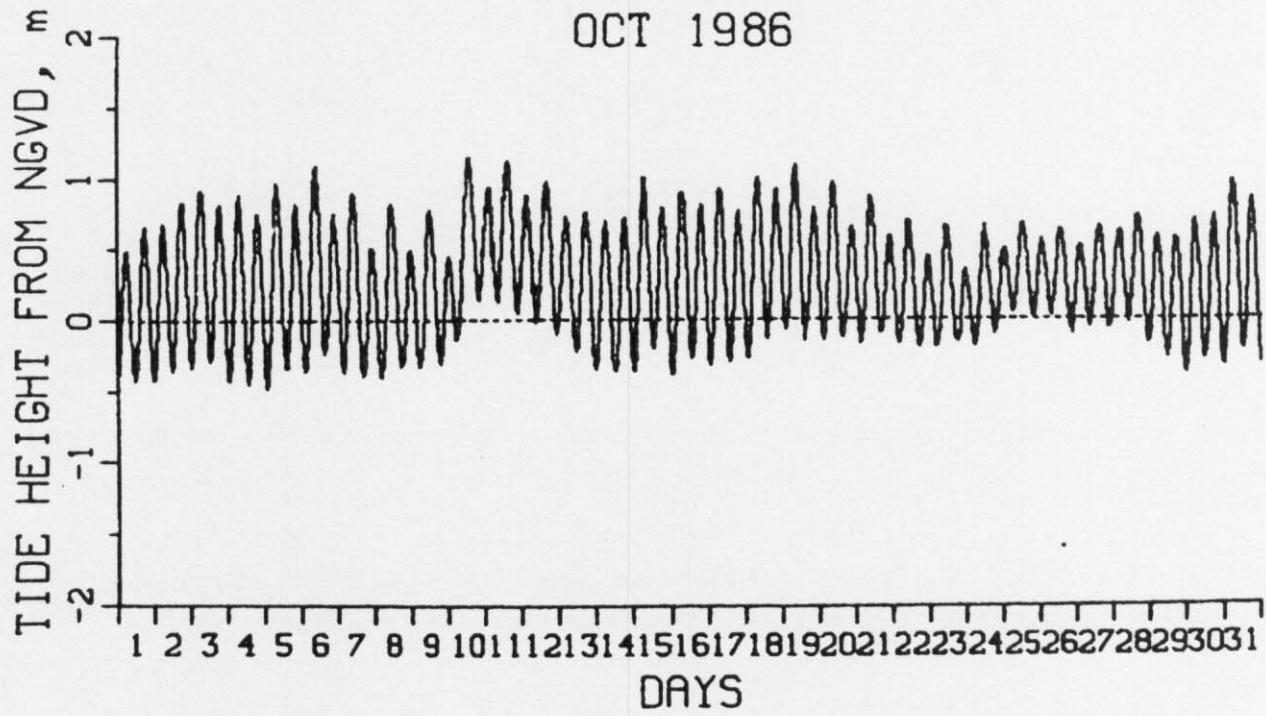


FIGURE 4. Time History of Mean Water Levels, October 1986 (Gage No. 865-1370)

MONTHLY MEAN WATER LEVELS (METERS MSL)

Extreme Low -	-.48 on 5 October at 0136 hrs.
Extreme High -	1.14 on 10 October at 1236 hrs.
Monthly Mean -	0.27
Mean Low Water -	-0.23
Mean High Water -	0.76
Mean Range -	0.99

MID-CYCLE DAY	TIME	LOW	HIGH	MEAN	RANGE
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1	1937	-0.42	0.66	0.12	1.08
2	703	-0.35	0.62	0.14	1.06
3	1929	-0.34	0.83	0.25	1.17
3	753	-0.29	0.92	0.32	1.21
3	2018	-0.42	0.82	0.21	1.24
4	843	-0.45	0.88	0.22	1.33
4	2109	-0.48	0.76	0.15	1.23
5	934	-0.34	0.97	0.29	1.31
5	2159	-0.36	0.81	0.21	1.17
6	1024	-0.23	1.08	0.42	1.31
6	2249	-0.37	0.74	0.19	1.11
7	1115	-0.39	0.89	0.27	1.29
7	2340	-0.40	0.51	0.04	0.91
8	1205	-0.33	0.81	0.24	1.14
9	30	-0.33	0.50	0.06	0.83
9	1255	-0.30	0.77	0.25	1.07
10	121	-0.26	0.45	0.11	0.71
10	1346	0.12	1.14	0.68	1.01
11	211	0.12	0.93	0.52	0.81
11	1436	0.05	1.12	0.62	1.07
12	301	-0.02	0.87	0.43	0.90
12	1527	-0.10	0.97	0.48	1.07
13	352	-0.23	0.73	0.28	0.95
13	1617	-0.34	0.75	0.23	1.10
14	442	-0.36	0.69	0.16	1.05
14	1707	-0.36	0.72	0.17	1.08
15	532	-0.36	1.01	0.36	1.37
15	1758	-0.38	0.79	0.23	1.17
16	623	-0.38	0.90	0.31	1.28
16	1842	-0.32	0.80	0.25	1.12
17	713	-0.30	0.91	0.33	1.21
17	1938	-0.28	0.76	0.22	1.04
18	804	-0.19	1.00	0.42	1.19
18	2029	-0.07	0.92	0.40	0.99
19	854	-0.14	1.09	0.48	1.23
19	2119	-0.15	0.79	0.30	0.93
20	944	-0.12	0.97	0.41	1.09
20	2210	-0.17	0.65	0.23	0.82
21	1035	-0.09	0.86	0.37	0.95
21	2300	-0.17	0.58	0.20	0.75
22	1125	-0.19	0.69	0.25	0.88
22	2350	-0.20	0.44	0.10	0.64
24	41	-0.19	0.35	0.06	0.54
24	1306	-0.10	0.66	0.26	0.75
25	131	-0.02	0.50	0.25	0.52
25	1356	0.01	0.67	0.37	0.66
26	222	0.02	0.56	0.28	0.54
26	1447	-0.10	0.62	0.31	0.72
27	312	-0.06	0.51	0.23	0.57
27	1537	-0.06	0.64	0.31	0.70
28	402	-0.02	0.63	0.30	0.64
28	1628	-0.17	0.73	0.32	0.90
29	453	-0.27	0.58	0.17	0.86
29	1718	-0.32	0.56	0.13	0.95
30	543	-0.29	0.70	0.19	0.95
30	1808	-0.32	0.73	0.18	1.05
31	634	-0.22	0.97	0.38	1.19

TABLE 6

WATER LEVELS (METERS MSL)
Tidal Characteristics

VII. NEARSHORE PROFILES

A. Nearshore Profiles. In order to document profile response away from the pier, surveys of four profile lines extending 900 to 1,000 m from shore and located 489 and 581 m north and 517 and 608 m south of the FRF pier are conducted bi-weekly, after storms, and during more complete bathymetric surveys.

These profiles are obtained using the CRAB-Zeiss surveying system; a Zeiss Elta-2 first-order, self-recording electronic theodolite distance meter in combination with the Coastal Research Amphibious Buggy (CRAB), a 10.7 m high, self-powered, mobile tripod on wheels.

Figure 5 shows the last survey in September and the three surveys taken during October on profile line 188, located 517 m south of the pier. As a result of two storms during October, some significant changes are visible on the profile. Following the first storm (10-12 October), a sharply defined nearshore bar (120 to 200 m) formed with only minor changes occurring on the remainder of the profile. The nearshore bar was reshaped by the second storm (18-19 October), which increased the bar's width by approximately 100 m (100 to 220 m). This storm also built a small berm on the foreshore (80 m). Offshore, only minor movements in the storm bar are visible.

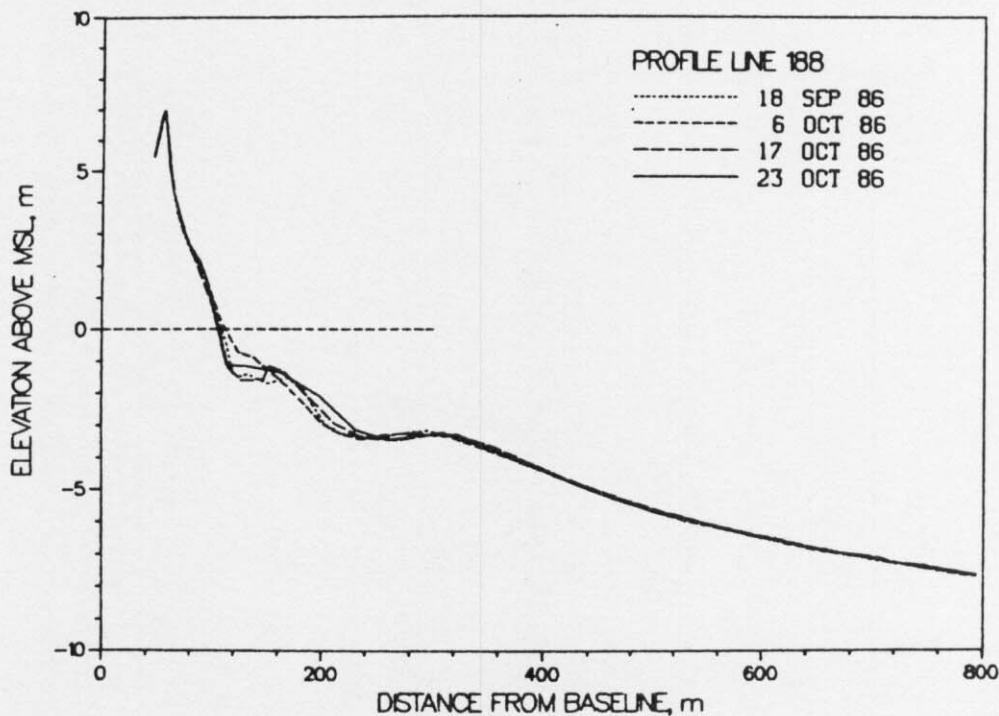


Figure 5. Monthly CRAB profiles on profile 188 - 517 meters south of pier.

The profile envelope (Figure 6) reflects the maximum changes which occurred on the profile between January and October. The only change to the envelope (120 m) reflects the crest of the nearshore bar formed by the first storm.

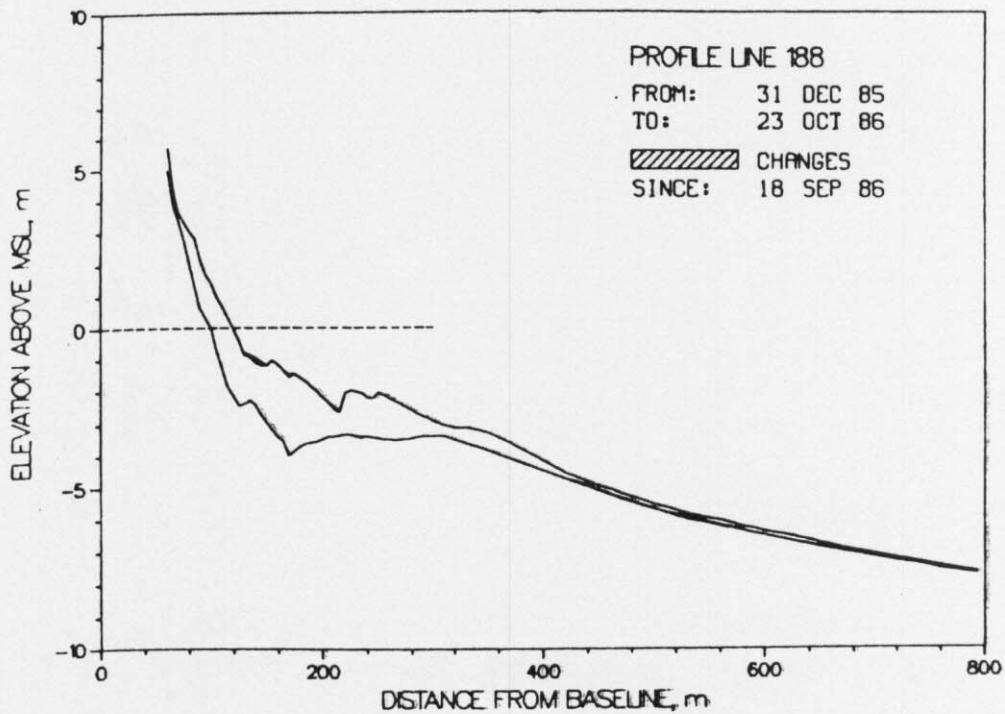


Figure 6. CRAB profile envelope - profile 188.

B. Bathymetry. No bathymetric survey was conducted in October. The September bathymetric survey is given for reference.

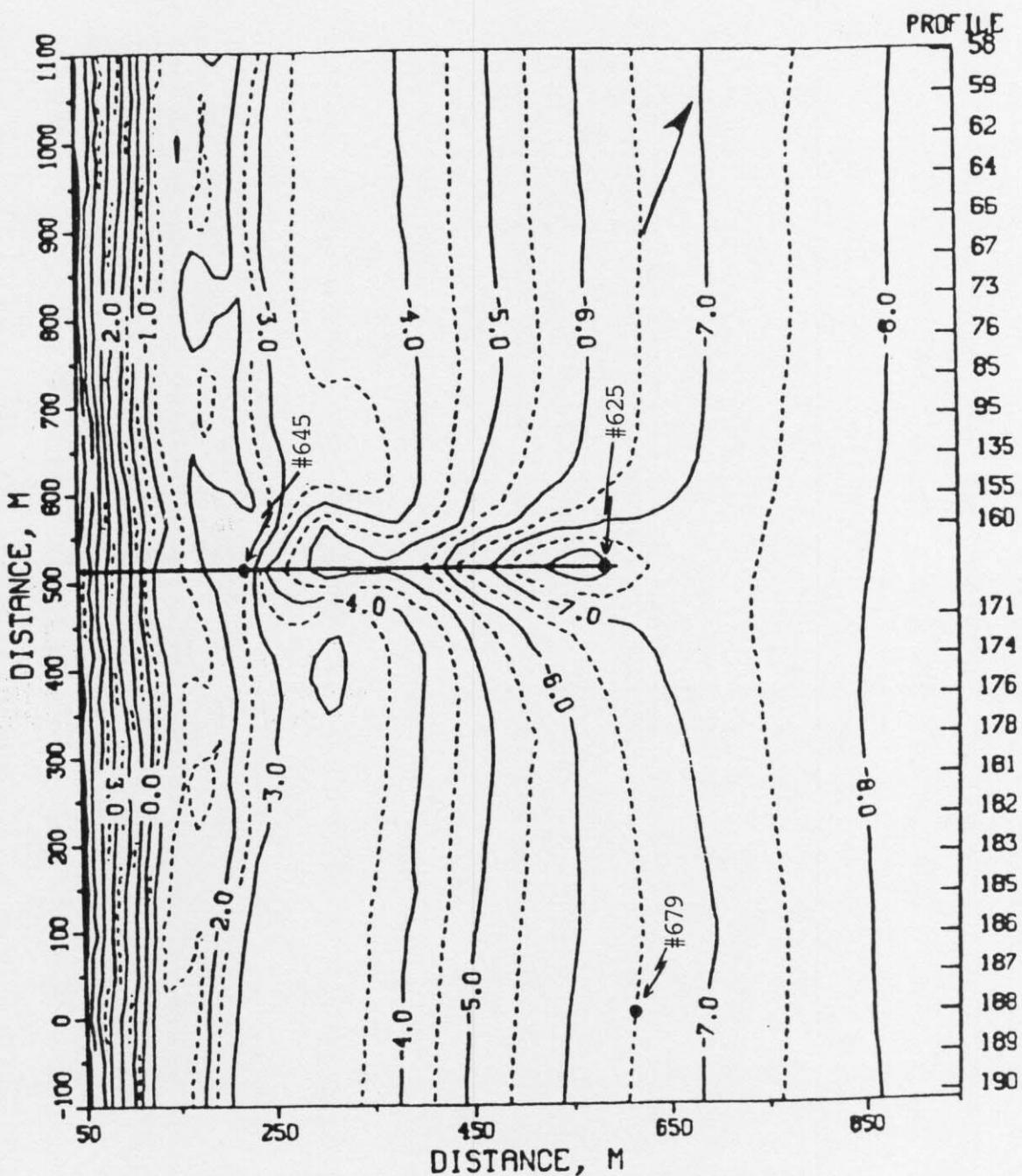


Figure 7. FRF BATHYMETRY 3 SEP 86
CONTOURS IN METERS

VIII. SPECIAL EVENTS

A. Storm Data Collection. The following list identifies times when the wave height at the seaward end of the pier (i.e. as measured by the Baylor gage #625 at pier station 19+00) exceeded 2 m and wave records were obtained every hour:

<u>Start</u>	<u>End</u>
10 October (0900)	12 October (1500)
18 October (1800)	19 October (1700)

B. Storm Synopsis.

10-12 October - Strong NE winds generated by a Canadian high pressure system first affected the FRF early on 10 October following the passage of a cold front. Winds reached 15 m/s (NE) and remained over 10 m/s for 41 consecutive hours, producing a storm surge of about 1/2 m (Figure 4). The maximum Hmo (Gage #640) of 3.25 m (period = 8.71 sec) was recorded on 11 October at 0800 hrs. Total precipitation was 11 mm.

18-19 October - Developing off Cape Hatteras, NC early on 16 October, this weak storm travelled slowly up the East Coast and was located off New England early on 18 October. The weak storm, in conjunction with a strong high pressure system centered over the Great Lakes, generated strong NNE winds at the FRF on 18 October. Winds peaked near 14 m/s (NNE) at 1500 hrs on 18 October with the maximum Hmo (Gage #625) of 2.35 m (period = 9.71 sec) recorded on 19 October at 0400 hrs. There was no precipitation.

Distribution List

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SAW

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University of New South Wales (Australia)
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